

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

期限: 10 月 21 日  
11 21 日

Applicant's or agent's file reference <b>P04696600</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/JP 03/16364</b>	International filing date (day/month/year) <b>19/12/2003</b>	(Earliest) Priority Date (day/month/year) <b>09/07/2003</b>
Applicant <b>MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

5 \_\_\_\_\_

☐ None of the figures.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP 03/16364

## Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The invention has an object of providing an organic electroluminescence element with a large emitted light quantity, an exposure unit and an image-forming apparatus both using the element. The organic electroluminescence element in accordance with the invention has, on a substrate (31), an anode (32) acting as a hole injection electrode, a cathode (33) acting as an electron injection electrode, a plurality of light emission layers (34,35) each having a light emission region and a charge generation layer (38) injecting electrons into the light emission layer lying close to the anode (34) and injecting holes into the light emission layer lying close to the cathode (35), these layers being arranged between the anode and the cathode, and is configured so that the work function of the charge generation layer (38) is set higher than the ionization potential of the light emission layer lying close to the anode(34).

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H01L51/20 B41J2/45

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H01L B41J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 098 376 A (CANON KK) 9 May 2001 (2001-05-09)	36
Y	paragraph '0001! paragraph '0037!	39
X	US 6 107 734 A (TANAKA SHOSAKU ET AL) 22 August 2000 (2000-08-22)	8
A	column 5, line 18 - column 8, line 36 ----- -/--	1-7,9-13

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

14 September 2004

Date of mailing of the international search report

21/09/2004

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 337 492 B1 (JONES GARY W ET AL) 8 January 2002 (2002-01-08)	1-5,7, 12,13, 15,16, 18,19, 31,34,35
A	the whole document	8-11,14, 17,36,39
Y	WO 00/70690 A (STURT CLIFFORD MARK ; KAWASE TAKEO (GB); SEIKO EPSON CORP (JP)) 23 November 2000 (2000-11-23)	15,16, 18,19, 31,34, 35,38,39
A	the whole document	14,20-22
Y	US 6 420 031 B1 (FORREST STEPHEN R ET AL) 16 July 2002 (2002-07-16) column 10, line 1 - line 16 column 15, line 14 - line 39	1-5,7, 12,13
Y	DE 100 26 236 A (NIPPON ELECTRIC CO) 1 March 2001 (2001-03-01) column 3, line 16 - line 24; example 1	38
A	PATENT ABSTRACTS OF JAPAN vol. 2003, no. 06, 3 June 2003 (2003-06-03) -& JP 2003 045676 A (KIDO JUNJI; INTERNATIONAL MANUFACTURING & ENGINEERING SERVICES CO LTD), 14 February 2003 (2003-02-14) abstract	1-13
A	US 6 274 980 B1 (FORREST STEPHEN R ET AL) 14 August 2001 (2001-08-14) the whole document	1-17
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 02, 29 February 2000 (2000-02-29) -& JP 11 329749 A (TDK CORP), 30 November 1999 (1999-11-30) abstract	1-13
A	J.KIDO ET AL: "High quantum efficiency organic EL devices having charge generation layer" 49TH JAPAN SOCIETY OF APPLIED PHYSICS AND RELATED SOCIETIES, March 2003 (2003-03), page 1308, XP008035187 abstract	1-13
8 1	E WO 2004/055897 A (MATSUSHITA ELECTRIC IND CO LTD) 1 July 2004 (2004-07-01) the whole document	1-39

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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